

Application Number: 10/826,181

Art Units: 3635



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TITLE OF INVENTION:
COMPOUND POST FRAME

Compound Post Frame for the purpose of having a means to securely fasten elongated objects together to form a single post.

CROSS-REFERENCE TO RELATED APPLICATIONS:

This application is entitled to the benefits of the Disclosure Ser.#536671 filed Aug. 18, 2003. This application is entitled to the benefits of Provisional Patent Application Ser.#60/500301 filed Sept. 05 2003.

**STATEMENT REGARDING FEDERALLY SPONSORED RESEACH OR
DEVELOPMENT: NOT APPLICABLE**

SEQUENCE LISTING: NOT APPLICABLE

Charles D. Lyo

Reference: Listing

Roark, Harold Dean	March 25, 2003	U.S. Pat. No. 6,536,745
Collins, Charles R.	April 10, 2003	U.S. Pat. No. 0,066,995A1
Auldridge, Douglas	Sept 3, 2002	U.S. Pat. No. 6,443,433B1
Chrisman, Lawrence C.	March 7, 1995	U.S. Pat. No. 5,395,093
Cooke, C.C.	July 24, 1906	U.S. Pat. No 826,996
Turner, B.R.	Jan 28, 1964	U.S. Pat. No. 3,119,471
Lechtenbohmer, Hans	Dec 14, 1999	U.S. Pat. No. 6,000,682
Berto, Joseph J.	July 1, 2003	U.S. Pat. No. 6,585,234

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REFERENCES

U.S. Pat. No 6,536,745 issued to Roark, Harold Dean on Mar 25, 2003 relates the fencing problems very well. It has a post and brace design that does brace in the line of the fence. This compound post 80 does not retain the weak points of a single T-post the way his patent does. The compound post has a united strength in all directions, it is more securely lock together for long term use and abuse.

U.S. Pat. No. 0,066,995A1 issued to Collins, Charles R. on April 10, 2003 is like all previous designs braced in the line of fences, weak to ninety degree pressure, complicated to build and assemble. The compound post 80 has the strength of multiple T-post 46C and with frame of choice can be assembled with readily available materials.

U.S. Pat No. 6,443,433B1 issued to Auldridge, Douglas on Sept 3, 2002 has a capable way of making a light duty rail fence that retains the weakness of the single T-post except in the direction the fence runs. The compound post 80 has lateral strength and can be assembled with any of several styles of frame.

U.S. Pat No. 5,395,093 issued to Chrisman, Lawrence C. on March 7, 1995 has a patent for a T-post height extender but is limited to a single T-post and the weakness inherit. The compound frame presented can be made into an extender by adding more T-post 46C positions with unlimited horizontal length or height, limited by stability only.

U.S. Pat. No. 826,996 issued to Cooke, C.C. on July 24, 1906 has a telegraph pole design, but is more complicated, requires more parts and is more difficult to assemble than the presented compound frame.

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U.S. Pat. No. 3,119,471 issued to Turner B.R. on Jan 28, 1964 has a tower design that has pre-welded post to braces. The presented compound frame can be assembled in the field making shipping of materials more compact.

U.S. Pat. No. 6,000,682 issued to Lechtenbohmer, Hans on Dec 14, 1999 has a patent with multiple rods for a compound fence post but appears to be designed for wood plank fence only and is extremely complicated and costly.

U.S. Pat. No. 6,585,234 issued to Berto, Joseph J. on July 1, 2003 has a device attaching too a T-post 46C. Berto's patent holds pvc 46C and wire.. The compound post frame 80, though different will do all that Berto's does. The compound post frame 80 will also have bracing capabilities and strength in all directions not provided with his. The compound post frame 80 will also be a height extender 44E if needed.



BRIEF DISCRIPTION OF DRAWING

Fig 1A Threaded bolt 50A.

Fig 1C steel plate 50B with 2 bolt holes 30 horizontal and centered from top to bottom and same holes 30 centered $\frac{1}{2}$ inch from both ends of sides.

Fig 1F rectangle 50E cut on 3 sides with rectangular protrusion 40 at open end and bent to a 90 degree at bend point 42 leaving unused opening 36 from each of two 8 inch square and 1/8 inch thick steel plates 48 use to connect the 2 plates into a frame.

Fig 1G is a threaded U-bolt 46A used as a securing device with nuts 46B.

Fig 1I is a strap of flexible steel. The strap 66B has a hole 30 for receiving a bolt 50A at one end and opposing slots 44 on opposite end.

Fig 1J is a steel fencing T-Post 46C.

Fig 2 is a view of an assembled frame 54 using 2 steel 8 inch square plate 48 with holes 30 and slots 44. Which are connected by using 4 steel plates 50B.

Fig 4 is a view of an assembled frame 58 using 2 steel 8 inch square plates 48 connected by bend 42 cut out 50E (leaving an unused hole 36) with holes 30 and slots 44.

Fig 6A is a view of channel bar steel with holes 30 and slots 44 to form completed frame 72.

Fig 6B is a view of 2 frames 72 welded in the shape of a T to form frame 74.

Fig 6C is a view of 3 frame 72 in the shape of an I to form frame 76.

Fig 6D is a view of 4 frames 72 in a rectangle to form frame 78 with extra slots 44 in post pattern 44E for extension pattern reference.

Fig 7A is a view of round frame 62 with holes, slots and a connector 50B with holes 30.

Fig 7B is a view of a steel band track 66A that encircles frame 62

Fig 7C is a curved rectangular bar 70 with holes 30 and bolt 50A.

Fig 7D is a side view of a yoke 68 and assembly of roller 68A and bolt 50A used on the track 66A.

Fig 9 is a completed view of a fence corner brace assembly 82, assembled with 3 post frame 54 assemblies 80 and 46C cross braces all held in place by clamp 46A with nuts 46B.

BRIEF SUMMARY OF INVENTION

The compound post 80 makes possible an all metal fence of uniform appearance. Said fence can be made that will have minimal damage. Compound post 80 are strong for force pull points and where fence line changes direction. The compound post 80 is strong in all directions, creating a more lean proof fence. Gates, barbwire and other items attach easily. Digging post holes is not required and firming time for stress post is eliminated. The material to build is readily available. Arsenic treated wooden post have been found to be dangerous. Wooden post often rot or burn. Pipe is expensive and difficult to attach too and used pipe often have contaminates. Rail fences with compound post 80 have a rail at each frame level made of T-post, Pvc Pipe, cement reinforcement rod or other items 46C. The compound post 80 with top post frame having additional post positions 44E can be extended and adjusted in height. The round frame 62 can form hunting or observation towers and other revolving items, such as lights. Compound post 80 can be fitted with one or several 360 degree gates for livestock work. The post frame 62 is a good design for use with antennas. Materials, size and shape of both frames and connected items 46C may be varied for level of stress of use. This invention has revealed a 3 pressure point clamping method with unparallel strength, it's a efficient post pattern that can be reversed on the same surface. It has a slot that holds objected firmly in a 3 point clamping device. The use of a frame as a clamping plate has presented a variable height post, a variable length brace or rail for fencing and structural framing and a 360 degree revolving attachment.

DISCRIPTION

1. Field of the Invention

The present invention relates to construction of a frame with a device to join two or more post, pipe, rods or similar items 46C into a super strong durable post 80. The frame makes it easy to attach items and exposes individual post 46C for easy attachment of items to them. This assembled post 80 can be used in the place of any post of any material for enclosure fences, support post for buildings, power poles, light support, observation towers, barricades and antenna.

Compound post 80 will have many possible uses and variants to describe even the ones already mention would be extensive. Descriptions, design, use and installation describe here will be for enclosure, exclusion fences. Fence T-post 46C will represent all of the elongated items possible for use in horizontal or vertical positions.

The present invention relates to fence post construction 80, and more particularly to a T-post 46C fencing unit. Another aspect of the present invention is a lateral bracing arrangement or assemblage that may be used for a corner fence assembly utilizing at least 2 posts 80 fencing units described here in. The present invention further relates to a method for forming a braced fencing arrangement, a rail fence assembly, a 360 degree revolving option and a post extender method.

1. Background of Invention

Fencing patents have been numerous for over 100 years proving that a need for improving fencing is important. The T-post 46C and barbwire have become the predominate choice. The T-post 46C alone is lacking in lateral strength and stability for building a long life fence. The compound post 80 presented here has strength in all directions and is easily braced in all directions if so desired. The compound post 80 is very serviceable when made of readily available T-post 46C. I have personal experience of T-post 46C still in

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use after 50 years. Wooden post and even steel pipe rarely last this long and both may contain hazards material and are widely used as best choice.

Detailed Description of the Invention

30 holes in frames are to accept insertion of U-bolts 46A for attaching braces T-post, pipe or cement reinforcement bar 46C, from one post 80, to another post 80, or to attach a gate or other items to the post 80. The holes 30 can be arranged so that two clamps 46A can hold brace post 46C in all directions. Holes in clamp connectors fig 1F, 50B and 50E are to attach individual post 46C to post frame 80.

36 holes in fig 4 are not used where a connector 50E has been cut and bent out 42.

40 protruded top of cut out 50E (fig 1F and fig 4) made to insert into cut out 44 to attach and separate plates 48.

42 bend out point of connector 50E (fig 1F and fig 4).

44 rectangle cut outs fig 4 on the open edge of all frames to accept individual post 46C to form a post 80. Rectangle enclosed cut outs on frames and connectors for insertion of protruded top 40 of connector 50E or twist-lock of 66B. Present drawings and descriptions or for a cut out 44 to accept the un-noduled side of a enclosure fence type T-post 46C, but represent all items that can be used as a post and may vary even on a frame. The additional cut out 44E-fig 60 is the extender and shows two patterns of identical cut outs slot 44.

46A is a threaded U-bolt 46A and nuts 46B. This when assembled through holes 30 in the assembled frames securely attaches 46C horizontal to form a brace or vertical to form post 80 and may interchange with 66B by choice.

46B. nut for open end of U-bolt 46A fig 1G.

46C. enclosure fence type T-post 46C is used to represent any post, pipe, rod or tubing 46C fig 1J and fig 9.

48 plate fig 2 steel square, rectangle, circle or a trapezoid plate used to make a frame. All of these plates 48 have rectangle cut outs 44 in a pattern for attaching items (in examples and drawings, T-post 46C will be used) to form a compound post 80.

50A fig 1A is a thread bolt 50A it is used to hold a rolling device in place on yoke 68. Bolt 50A by narrowing the yoke 68 clamps it too the 360 degree track 66A. The second bolt 50A is inserted first through top gate arm 70 (in the end with only one hole 30) continuing into center hole 30 of frame 62 to secure arm 70 but allow 360 degree revolution.

50B fig 1C is a steel plate 50B measuring 3 inches horizontal and 2 ½ inches vertical . Two holes 30 or 1 hole 30 and 1 slot 44 are machined in at 1 ¼ inch from the top of the plate 50B. One is 1/2 inch from the left and the other is 1/2 inch from the right side of the plate 50B. These if 2 holes 30 receives 46A or if one hole 30 and 1 slot 44 the strap twist and lock 66B with 50A for the hole 30.

50E fig 1F is a cut-bend-out 50E(leaving unused opening 36) steel protrusion of plate 48, four of the 50Es are cut in each plate 48. 50Es become 8 connectors for the two plates, 50Es are cut to be a rectangle 50E with a smaller rectangle 40 protruding from the open end. A hole 30 or slot 44 is machined into the center of each 50E to receive one end of either 46A or 66B and 50A.

54 frame fig 2 is 2 approximately 1/16 -1/8 inch steel plates 48, approximately 8 inches square having four cut outs 44 approximately ¾ inches deep, approximately ¼ inches wide to accept the un-nodule side of the T-post 46C two of these cut outs 44 are open on the edge of one side approximately 11/2 inches from the corners. The opposite side does not have cut outs 44. The

adjoining sides each have a cut out 44 approximately 1 1/2 inch from the far corner of the side with two slots 44. Four 50Bs are welded with 50B corner of plate aligning with corner of plate 48 and slot 44 to align with center of holes 30 on 50B.

ASSEMBLE : Post 80 fig 9 places two frames 54, two cut outs 44 side up on flat surface spaced about 2 feet apart. Lay 2 T-post 46C un-nodule side in cut outs 44 position, to leave length of T-post 46C above top of frame 54 approximately 2 1/2 feet to operate single post, T-post 46C hammer. Insert U-bolts 46A around T-post 46C and into frame connectors 50B attach nut fasteners 46B to firm but light torque, rotate frame 54 assembly and repeat post 46C assembly for remaining 2 post 46C.

INSTALLING: Compound post 80 fig 9 in fence, place compound post assembly 80 square with fence line and 2 post 46C side nearest line of fence. Relieve torque tension on 2 clamps 46A of one post 46C and drive into ground with T-post 46C hammer. Torque clamps 46A to secure if frames are at desired level or light if frame will be adjusted when all 4 post 46C have had this procedure accomplished repeat this for all post. The farm tractor implement for pounding large post in the ground, that is on the market should also work with nuts 46B fully torque.

58 frame fig 4 is a frame 54 made with this press and cut and bend 42 method. This press cut and bend 42 method can be applied to all frames. Press cut two 1/16 inch to 1/8 inch steel plates 48 approximately 8 inches square, have four cut outs 44 approximately 3/4 inch deep approximately 3/16 inch wide to accept the un-nodules side of T-post 46C. The cut outs 44 in the corner pattern (two on one side 2 1/4 inch from each corner, none on the opposite side, one each on the other two sides 2 1/4

inch from the corners farthest from the side with cut outs 44). The left corner 44 on the side with 2 cut outs 44 have centered on the cut out 44 and position so that the uncut base is 1 1/4 inch from the edge of plate 48 are two rectangular shaped partial cut outs 50E. The partial cut outs 50E are approximately 1 inch wide and 3 inches long. The diagonal corner cut out 44 has the same. The cut end of the cut out 50E is made to have a protrusion in the middle that is 1/2 inch by 1/2 inch. The right corner on the side with two cut outs 44 have centered on them and 1/2 inch farther from the edge (1 1/4 inch), two (1/2 inch by 1/8th inch) cut outs 44 that are parallel to the side. The left diagonal corner has the same. The cut outs 44 and 50E will serve as connectors 50E for the two plates 48 and have in the center of the rectangle part a hole 30 to receive one side of U-bolt clamp 46A with nuts 46B. The connectors 50E are bent 42 upward on two identical plates 48. Holding the two plates 48 to make frame 58 in a side by side position so that they are identical (If this in not possible one plate has connectors 50E on the wrong side bend them to the other side) with bottle shape connector 50E bent up and with the sides with 2 slots 44 on the left, turn the right plate 48 a 180 degrees and close as closing a book. The top 40 of connectors 50E go into cut outs 44 and are bent to lock plates 48 together and form frame 58. Assembly and installation is the same as frame 54.

62 round frame fig 7A is a round frame 62 the working model is 12 inches in diameter. The 2 round plates 48 forming frame 62 are connected by 6 plates 50B. Six slots 44 are equally spaced and aligned on the outer edge on both round plates 48. Connectors 50B are welded centered on the slots 44 provided at the edge. Providing for an attachment of 6 post 46C to be installed with U-bolt 46A and secured with nuts 46B. Four holes 30 have been provided on top plate 48 only for attaching a brace post 46C. The 4 holes 30 are arranged to accept 2 U-bolts 46A in alternate positions. Hole 30

is centered on both plates 48 for insertion of bolt 50A (fig 1A) to provide 360 degree revolving option. Post 80 made with frame 62 , when used as a 360 degree gate post can mount several gates to be used in a livestock circular pen for livestock to be loaded, medicated or separated. The post 80 frame 62 can be used for entrances where the gate needs to open in either direction and swing back until something other than the post 80 itself stops the gate.

ASSEMBLY: Post frame 62 is similar to other post frames. The frame forms a channel with a U-bolt 46A exerting pressure in the middle area of the channel to lock items to post frames. Post frames 62 for 360 degree revolving gate requires the addition of a track 66A to encircle post frame 62 on a lower level. Frame 62 and is attached by straps 66B welded on the track 66A, to the U-bolts 46A holding T-post 46C as previously assembled part of post 80 frame 62. The gate on the bottom will have one end of a yoke 68 shaped attachment in the place of the normal hinge assembly. The yoke 68 may have a channel configuration at the ends of the forks of yoke 68 to prevent the gate being lifted on the non hinge end and a revolving roller wheel 68A device to carry the weight of the gate. The wheel would be mounted on a bolt 50A that also adjust forks of yoke 68 to track 66A. The gate will have one end of a arm 70 attached to the hinge end top of the gate. The other end with a hole in it will curve to align with a large bolt 50A in the hole 30 in the center of post frame 62 at the top of post 80. The bolt 50A end of 70 may need to vary in shape on each when used with additional gates to allow for short over lapping moves during operation. The yoke 68 on low attachments does not have this circumstance. Assembly and installing is the same as post 80 and with frame 54.

66 A is a open metal bicycle wheel like track of a size to encircle post 80 frame 62. 66A has inside measured as with slot 44 of frame 62 connection straps 66B for locking wheel track 66A too frame 62. Assembly with yoke 68 to carry gates attached at bottom hinge in 360 degree turn around post 80.

66B fig 1I is a strap of flat flexible steel 66B with a hole 30 in one end. The other end is welded to track 66A or twist to lock if slot 44 is provided. The strap 66B on 66A track is attached by hole end too clamp 46A preassembled on round frame 62. Strap 66B can interchange with clamp 46A if one hole 30 becomes a slot 44. If slot 44 is provided it is a twist to lock on one end and bolt 50A on the other end. A combined hole 30 and slot 44 is possible.

68 Yoke fig 7D is an assembly used on track 66A. Horizontal holes 30 on the single protrusion of yoke 68 are for mounting a 360 degree gate (to frame 62) at positions lower than top frame 62 with bar 70. The other double protrusion end has a vertically aligned hole 30 in each. Bolt 50A is inserted from outside in through first yoke, second through roller 68A, third through second protrusion of yoke 68 and secured by nut 46B. Bolt 50A holds roller 68A in place and collapses the double yoke 68 ends too embrace track 66A in U or angle shaped protrusions.

68A is a roller wheel to carry the weight of a gate attached to frame 62 post 80 as it revolves 360 degrees.

70 gate arm fig 7C is a rectangular bent bar 70. This bar 70 has 2 holes 30 on one end horizontal too attach a gate. This bar 70 has a vertical hole 30 on the opposite end with bolt 50A inserted. Bar 70 will rotate around this bolt 50A after assembly on frame 62 post 80.

72 channel bar frame fig 6A is a 1/8 steel channel bar frame 72. The channel bar has a cut-out 44 centered on the end of each bar for an optional attachment for post 46C with 66B. Not shown is optional channel bar ends cut too each have 2 protrusions 40 for joining 2 frames 72 when slots 44 are provided as a replacement method of joining by welding on the back. The bar has 1 1/2 inch from the end of each of the 4 channel bar ends a slot 44 these are machined too align vertical. Holes 30 are machined in the flat of the channel bar each are 1 inch too the side of a line 90 degrees from the slot 44 to the flat of the channel bar back. The distance between this assembly point is a variant. This frame 72 constructed 8 feet between post attachments becomes a brace assembly or a rail fence when installed on several levels. This frame 72 made 8 inches between post attachments becomes a frame 72, used in joining 2 T-post 46C into a post 80. This rail fence could be a decorative fence equal to the T-post and white plastic now in use when PVC pipe is used for channel bar and post cover.

74 post frame fig 6B is made by welding the end of one post frame 72 to the middle of the flat side of another to form a T.

76 post frame 76 fig 6C is made by welding one post frame 72 by its flat side in the middle to a post frame 74 to form a I.

78 box channel frame fig 6D is 4 identical frame 72s welded to form a rectangle frame 78. The 4 frames 72, all have the bar side open to the outside of the rectangle. Two frames 72 are welded at the corners of the flat side of one and one is welded to the 2 exposed ends of the 2 at the corners flat side in. Slots 44 and holes 30 remain as provided in fig 6A frame 72. The very effective slot 44 arrangement used in frames 54 fig 2 and frames 58 fig 4 have been created double. The basic 4 arrangement is designated with slot 44, the reversed arrangement of 4 is designated slot 44E. When frame 78 is installed at the top end of post 80, 4 slots 44E provides for 4 more post 46C to be added vertical extending the assembly in height and adjustable from inches higher to only inches less than the post added.

80 compound post is any frame post 80 and is assembled with clamp 46A securing T-post 46C to frame.

82 is 3 assembled compound post 80 forming corner fence brace system. Fig 9 is a view of a corner braced fence assembly 82 assembled with 3 compound post 80. Each compound post 80 is assembled with 2 frames 54 (fig 2) spaced on each compound post 80 and connected in a 90 degree corner by 4 brace T-post 46C. T-post 46C horizontal and vertical are locked in place by clamp 46A with 46B securing. This is a inclusion exclusion fence assembly for use when fence line changes direction.

In conclusion, having described the invention in detail, those skilled in the art will appreciate that modifications may be made to the various aspects of the invention without departing from the scope and spirit of the invention disclosed and described herein. It is, therefore, not intended that the scope of the invention be limited to the specific embodiments illustrated and described but rather it is intended that the scope of the present invention include the appended claims and their equivalents. Moreover, all patents, patent applications, publications, and literature references presented herein are incorporated by reference in their entirety for and disclosure pertinent to the practice of this invention. Numerous variations are still possible, while adhering to the inventive concept. Such variations are contemplated as being a part of the present.